

**Notice of Allowability**

Application No.

10/082,291

Applicant(s)

TAMURA ET AL.

Examiner

Art Unit

Esaw T Abraham

2133

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--**

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 1-9 and 19 (renumbered as 1-10).
2. ☒ The allowed claim(s) is/are 1-10.
3. ☒ The drawings filed on 26 February 2002 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☐ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☐ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
  6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
    - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
      - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
    - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

**Attachment(s)**

- |   |   |
|---|---|
| 1. <input type="checkbox"/> Notice of References Cited (PTO-892)  | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)           |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date _____ | 7. <input type="checkbox"/> Examiner's Amendment/Comment                              |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material          | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|   | 9. <input type="checkbox"/> Other _____   |

**ALBERT BECADY**  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2100

### DETAILED ACTION

1. Claims 10-18 are canceled.
2. Claims 1-9 and 19 have been allowed.

#### *Examiner's statement for reason for allowance*

The following is an examiner's statement for allowance:

3. Claims **1-9 and 19** have been allowed.

As per claim **1**:

The prior art (Shinohara, U.S. PN: 5,724,285) of record in figure 3 teach or disclose a card (21) comprise a flash memory controller (28) for controlling a flash memory (24). The flash memory controller (28), in a memory control (23) connected to an outside or host computer (22) to access instruction and a process for adding an error correction code by an ECC circuit (31) to data, which is written to the flash memory (24) from the host computer (22). Shinohara further teaches that the card comprising an error correcting code circuit, wherein the controller reads data in flash memory device through said error correcting code circuit and writes corrected data in a portion in which said error correcting code circuit detects a correctable read error when data stored in flash memory device are refreshed (see claim 2). However, the prior art taken singly or in combination fail to teach, anticipate, suggest, or render obvious a memory controller in response to a write access instruction from the external device, the memory controller controls a first external process for adding an ECC data to which is written to said non-volatile memory from the external device, in response to the read access instruction from the external device, memory controller controls a second process for conducting error detection and correction using said ECC code on data which is read out from said non-volatile memory to the external device

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and said memory controller controls a third process for conducting error detection and correction on memory information stored in said non-volatile using said ECC code independently of one of the first process and said second process. Consequently, claim 1 is allowed over the prior art.

Claims 2-9, which are directly or indirectly dependent of claim 1 are also allowable over the prior art of record.

As per claim 19:

The prior art (Shinohara, U.S. PN: 5,724,285) of record in figure 3 teach or disclose a card (21) comprise a flash memory controller (28) for controlling a flash memory (24). The flash memory controller (28), in a memory control (23) connected to an outside or host computer (22) to access instruction and a process for adding an error correction code by an ECC circuit (31) to data, which is written to the flash memory (24) from the host computer (22). Shinohara further teaches that the card comprising an error correcting code circuit, wherein the controller reads data in flash memory device through said error correcting code circuit and writes corrected data in a portion in which said error correcting code circuit detects a correctable read error when data stored in flash memory device are refreshed (see claim 2). However, the prior art taken singly or in combination fail to teach, anticipate, suggest, or render obvious a memory controller in response to a write access instruction from the external device, the memory controller controls a first external process for adding an ECC data to which is written to said non-volatile memory from the external device, in response to the read access instruction from the external device, memory controller controls a second process for conducting error detection and correction using said ECC code on data which is read out from said non-volatile memory to the external device and said memory controller controls a third process for conducting error detection and correction

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on memory information stored in said non-volatile using said ECC code independently of a process performed in response to an access corresponding to one of said read access instruction and said write access instruction from the external device. Consequently, claim 19 is allowed over the prior art.


Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### *Conclusion*

4. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Esaw Abraham whose telephone number is (571) 272-3812. The examiner can normally be reached on M-F 8-5.

If attempts to reach the examiner by telephone are successful, the examiner's supervisor, Albert DeCady can be reached on (571) 272-3819. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 746-7239 for regular communications and (703) 746-7238 for after final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

  
Esaw Abraham

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